

Preface

Management at companies and institutions are facing more and more problems that demand powerful, effective, efficient, and flexible methods in their computer systems in order to support making every-day decisions. It is obvious that management is critically dependent on knowledge. Without knowledge, we are unable to handle events. However, our responses are well grounded only in isolated cases because past and future of the cases cannot be considered. Knowledge gives its respect to the past and influence to the future at our decisions.

The aim of this *Special Issue on Computation and Management* is to support advancements in an important area of enterprise activity. The other purpose of this issue is to bring advanced information technology and management closer together. A common aspect of the papers collected in this issue is the application of computation methods in management-related problem solving. The papers in this special issue are divided into two different categories on the basis of the highlighted issues: 1) *Market, commerce, and resource management related issues* (seven papers) and 2) *Knowledge management related issues* (seven papers).

In the first category, the paper “A formal test of asymmetric correlation in stock market returns and the relevance of time interval of returns – a case of Eurozone stock markets” examines the asymmetry of correlation between Eurozone’s stock market returns. The asymmetry of correlation is investigated pair-wise, by estimating the exceedance correlation between returns of two stock markets at a time. The paper “Genetically Evolved Agents for Stock Prices Prediction” is about genetically evolving agents that act as prediction algorithms to maximize their stock prices prediction ability. A newly designed stock price prediction algorithms benchmark is used as a fitness function. The next contribution, entitled “The IT Aspect: Towards a More Efficient System-Control and Audit of EU Funds for the Cohesion Policy”, explores how deeper exploitation of the current IT background could improve the efficiency of audits and controls of EU funds for cohesion policy. From a professional point of view, direct access to core national databases would provide auditors with additional information on systems at the Member States level. The paper “Benefits of Smart Grid Solutions in Open Electricity Market” highlights smart grid solutions that include different technologies to improve the efficiency of electricity distribution network operation. The benefits coming from implementation of distributed automation systems are investigated and evaluated. The contribution “An Approach for e-Commerce On-Demand Service-Oriented Product-Line Development” emphasizes that, due to the dynamic nature of the business domain, delivering on-demand functionalities provides high flexibility in adapting to new client requirements. The reuse capabilities of a hybridization of Service Oriented Architecture (SOA) and Software Product-Line (SPL) are explored. In the paper “Living Labs those integrate Interactive, co-creative relations and collaboration of consumers, users and producers” a living

lab is introduced as a means to integrate users in the development process of new technologies as co-creators, bridging the roles between market pull and technology push innovation, realizing some sort of concurrent innovation. The paper “*Measurement and Simulation of Energy Use in a School Building*” presents the development of a wireless temperature monitoring system and the application of measurement data for computer model validation. The results are used to develop generalized guidelines for the determination of the efficiency of energy saving measures and the evaluation of low-energy buildings.

In the second category, the paper “*Managing Rational and Not-Fully-Rational Knowledge*” applies the SECI model and emphasizes that knowledge management is a range of strategies and practices in organizations to identify, create, represent, distribute, and enable the adoption of insights and experiences. In knowledge management, the elements of knowledge, insights and experiences are embedded in organizational processes and practices. The contribution “*Combining co-training with ensemble learning for application on single-view natural language datasets*” introduces a learning algorithm to exploit the advantages of co-training algorithm, while being exempt from the co-training requirement for the existence of adequate feature split in the dataset. The paper “*Automatic recognition of features in spectrograms based on some image analysis methods*” presents the automatic localization, extraction, analysis, and comparison/classification of the features in signals and their spectra. The method is suitable for a variety of algorithms focused on visual data processing in applications such as the analysis of biological, acoustic, sonar, and radar signals. In the paper “*Information and Knowledge Retrieval within Software Projects and their Graphical Representation for Collaborative Programming*”, a method is proposed for information and knowledge mining in the source code of medium and large enterprise projects. Developers within and outside a team can receive and utilize visualized information from the code and apply them to their projects. The contribution “*Simulation tools evaluation using theoretical manufacturing model*” confronts average values of performance indicators of the manufacturing simulation model in three well-known simulation tools. It applies inferential statistical technique after normality test and homogeneity of variances to analyze the output data of model in the different simulation tools. The aim of the paper “*Investigating the Influence of Knowledge Management Practices on Organizational Performance: An Empirical Study*” is to investigate the influence of knowledge management practices on organizational performance in small and medium enterprises (SMEs) using structural equation modeling (SEM). The paper “*Active Knowledge for Situation-driven Control of Product Definition*” introduces a new method for the application of active knowledge in the adaptive modification of product model features in the case of a changed situation or event. The objective is to achieve a higher level and more advanced active feature driven product model definition in industrial product lifecycle management (PLM) systems.

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Jozef Kelemen, László Horváth

Special Issue Guest Editors